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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,991	06/23/2003	Kenneth M. Elder	1741.0	9088
22497	7590	09/21/2005		
LARSON AND LARSON 11199 69TH STREET NORTH LARGO, FL 33773			EXAMINER ROMAN, LUIS ENRIQUE	
			ART UNIT 2836	PAPER NUMBER
DATE MAILED: 09/21/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/601,991	ELDER, KENNETH M.	
	Examiner	Art Unit	
	Luis Roman	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/30/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/14/2003</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: "... set of two coils coupled in parallel to one another, *relative* to the plurality of conductors". The term *relative* in this case makes the claim indefinite. Electrical components are either connected in series or parallel relative to none. For the purpose of this examination the Office will consider that the set of two coils are coupled in parallel to one another.

"A *multitude* of surge elements connected in series ...". The term *multitude* makes the claim indefinite, as it is unclear what quantity of surge elements constitutes a multitude. For the purpose of this examination the claim language will be interpreted such that there is only one surge element connected in series with each of the set of two coils and that the plurality of these surge elements will combine to form a multitude. Appropriate corrections are required.

Claim 2 is objected to because of the recitation "...the first coil first set of windings is disposed at a ninety degree angle to the second coil second set of windings." Makes the claim vague and indefinite. For the purpose of this examination the Office will consider that the first and second coil belong to the same set (Fig. 2). Appropriate corrections are required.

Claims 5 & 18 are objected to because of the recitation "...the first coil first set of windings are disposed upon the second coil second set of windings ..." Makes the claim vague and indefinite. For the purpose of this examination the Office will consider that the first and second coil belong to the same set (Fig. 4). Appropriate corrections are required.

Claims 6 & 19 are objected to because of the recitation: "...the first coil first set of windings are intertwined with the second coil second set of windings". Makes the claim vague and indefinite. For the purpose of this examination the Office will consider that the first and second coil belong to the same set (Fig. 5). Appropriate corrections are required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C.102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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102(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 8 & 15 are rejected under 35 U.S.C. §102(b) as being anticipated by Stahl (US 5,388,021).

Regarding to claim 1 a surge suppression and protection device for use with electrical equipment and devices and data communication lines having a plurality of conductors, the surge suppression and protection device comprising:

- a) at least one set of two coils (Fig. 6 elements 23a & 24c) for each of the plurality of conductors, the two coils disposed in close proximity to one another, a first coil having a first set of windings, a second coil having a second set of windings, the first and second windings placed an angle to one another (two coils windings are at a zero angle to each other), each set of two coils coupled in parallel to one another relative to the plurality of conductors, and
- b) a multitude of surge elements (Fig. 6 MOVs 28, 29, 32 & 42 and coils 23a & 24c) connected in series to each of the set of two coils.

Regarding to claim 7 Stahl discloses the surge suppression and protection device of claim 1.

Stahl further discloses wherein the multitude of surge elements are chosen from the group consisting of metal oxide varistors, avalanche diodes or gas tubes. See Fig. 6 (MOVs 28, 32 & 42 and coils 23a & 24c).

Regarding to claim 8 Stahl discloses the surge suppression and protection device of claim 7.

Stahl further discloses wherein a pair of metal oxide varistors is employed for each of the first and second coils (Fig. 6 elements 28, 32, 42).

Regarding to claim 15 a surge suppression and protection device for use with electrical equipment and devices and data communication lines having a plurality of conductors, the surge suppression and protection device comprising:

- a) a first and second coil (Fig. 6 elements 23a & 24c) disposed in close proximity to one another coupled in parallel to two of the each of the plurality of conductors, the first coil having a first set of windings, the second coil having a second set of windings, the first and second windings placed an angle to one another (the two coils windings are at a zero angle to each other),
- b) a multitude of metal oxide varistors connected in series to each first and second coil (Fig. 6 MOVs 28, 29, 32 & 42 and coils 23a & 24c).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this office action.

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 15, 16, 17, 18, 19 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stahl (US 5,388,021) in view of Totsuka et al. (US 5,061,891).

The following rejections of claims 1, 7, 8 and 15 are separate and alternative rejections based on Stahl in view of Totsuka et al.

Regarding to claim 1 Stahl discloses a surge suppression and protection device for use with electrical equipment and devices and data communication lines having a plurality of conductors, the surge suppression and protection device comprising:

a) at least one set of two coils (Fig. 6 elements 23a & 24c) for each of the plurality of conductors, each set of two coils coupled in parallel to one another relative to the plurality of conductors, and

b) a multitude of surge elements (Fig. 6 MOVs 28, 29, 32 & 42 and coils 23a & 24c) connected in series to each of the set of two coils.

Stahl does not disclose that the two coils disposed in close proximity to one another, a first coil having a first set of windings, a second coil having a second set of windings; the first and second windings placed an angle to one another.

Totsuka et al. teaches that the two coils disposed in close proximity to one another, a first coil having a first set of windings, a second coil having a second set of windings, the first and second windings placed an angle to one another (two coils windings are at a ninety degrees angle to each other) (Fig. 8 & col. 5 lines 49-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Stahl device having the two coils at a configuration of 90 degrees, because this configuration tends to cancel the magnetic field of both coils. As a result it provides more protection to the other more fragile elements of the circuit against voltages, heat, etc.

Regarding to claim 2 Stahl discloses the surge suppression and protection device of claim 1.

Totsuka et al. further discloses wherein the first coil first set of windings are disposed at a ninety degree angle to the second coil first set of windings (Fig. 2).

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Regarding to claim 3 Stahl discloses the surge suppression and protection device of claim 1.

Totsuka et al. further discloses wherein the first coil first set of windings is disposed at a non-parallel angle to the second coil second set of windings (Fig. 2).

Regarding to claim 4 Stahl discloses the surge suppression and protection device of claim 1.

Totsuka et al. further discloses wherein the first coil first set of windings substantially surrounds the second coil second set of windings (Fig. 2).

Regarding to claim 5 Stahl discloses the surge suppression and protection device of claim 1.

Stahl does not disclose wherein the second coil second set of windings has a top surface and the first coil first set of windings are disposed upon the second coil first set of windings top surface separated by a small air space.

Totsuka et al. teaches wherein the second coil second set of windings (Fig. 8 element La2) has a top surface and the first coil first set of windings (Fig. 8 element Lb2) are disposed upon the second coil first set of windings top surface separated by a small air space (Fig. 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Stahl device having the windings of the two coils in a juxtaposed configuration. This configuration helps to minimize the Eddy currents and also contributes to a more compact and cheaper device.

Regarding to claim 6 Stahl discloses the surge suppression and protection device of claim 1.

Stahl does not disclose wherein the first coil first set of windings is intertwined with the second coil first set of windings.

Totsuka et al. teaches wherein the first coil (Figs. 6 & 7 element L1) first set of windings is intertwined with the second coil (Figs. 6 & 7 element L2) first set of windings. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Stahl device having the windings of the two coils in a intertwined configuration. This configuration facilitates the improvement of the magnetic coupling and the decrease of the leakage inductance as compared with the case where a single strand wire is used to form the windings.

Regarding to claim 7 Stahl discloses the surge suppression and protection device of claim 1.

Stahl further discloses wherein the multitude of surge elements are chosen from the group consisting of metal oxide varistors, avalanche diodes or gas tubes. See Fig. 6 (MOVs 28, 32 & 42 and coils 23a & 24c).

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Regarding to claim 8 Stahl discloses the surge suppression and protection device of claim 7.

Stahl further discloses wherein a pair of metal oxide varistors is employed for each of the first and second coils (Fig. 6 elements 28, 32, 42).

Regarding to claim 9 Stahl discloses the surge suppression and protection device of claim 1.

Stahl further discloses wherein the electrical equipment and devices are connected to an electrical power line having a phase chosen from the group consisting of single-phase lines (Fig. 6 element 15).

Regarding to claim 15 Stahl discloses a surge suppression and protection device for use with electrical equipment and devices and data communication lines having a plurality of conductors, the surge suppression and protection device comprising:

a) a first and second coil (Fig. 6 elements 23a & 24c)

b) a multitude of metal oxide varistors connected in series to each first and second coil (Fig. 6 MOVs 28, 29, 32 & 42 and coils 23a & 24c).

Stahl does not disclose that the first and second coils are disposed in close proximity to one another coupled in parallel to two of the each of the plurality of conductors, the first coil having a first set of windings, the second coil having a second set of windings, the first and second windings placed an angle to one another.

Totsuka et al. teaches that the first and second coils are disposed in close proximity to one another coupled in parallel to two of the each of the plurality of conductors, the first coil having a first set of windings, the second coil having a second set of windings, the first and second windings placed an angle to one another (the two coils windings are at a ninety degree angle to each other Fig. 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Stahl device having the two coils at a configuration of 90 degrees, because this configuration tends to cancel the magnetic field of both coils. As a result it provides more protection to the other more fragile elements of the circuit against voltages, heat, etc.

Regarding to claim 16 Stahl discloses the surge suppression and protection device of claim 15.

Totsuka et al. further discloses wherein the first coil first set of windings are disposed at a ninety degree angle to the second coil second set of windings.

Regarding to claim 17 Stahl discloses the surge suppression and protection device of claim 15.

Totsuka et al. further discloses wherein the first coil first set of windings substantially surrounds the second coil second set of windings.

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Regarding to claim 18 Stahl discloses the surge suppression and protection device of claim 15.

Totsuka et al. further discloses wherein the second coil second set of windings (Fig. 8 element La2) has a top surface and the first coil first set of windings (Fig. 8 element Lb2) are disposed upon the second coil first set of windings top surface separated by a small air space (Fig. 8).

Regarding to claim 19 Stahl discloses the surge suppression and protection device of claim 15.

Stahl does not disclose wherein the first coil first set of windings is intertwined with the second coil first set of windings.

Totsuka et al. teaches wherein the first coil (Figs. 6 & 7 element L1) first set of windings is intertwined with the second coil (Figs. 6 & 7 element L2) first set of windings. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Stahl device having the windings of the two coils in a intertwined configuration. This configuration facilitates the improvement of the magnetic coupling and the decrease of the leakage inductance as compared with the case where a single strand wire is used to form the windings.

Akachi et al. further discloses wherein the first coil first set of windings is intertwined with the second coil first set of windings.

Regarding to claim 20 Stahl discloses the surge suppression and protection device of claim 15.

Stahl further discloses wherein the electrical equipment and devices are connected to an electrical power line having a phase chosen from the group consisting of single-phase line (Fig. 6 element 15).

Claims 10, 11, 12, 13, 14, 21, 22 & 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stahl (US 5,388,021) in view of Totsuka et al. (US 5,061,891) and Crosby et al. (US 4,876,713).

Regarding to claim 10 Stahl discloses the surge suppression and protection device of claim 1.

Stahl discloses that the device is connected directly to an AC electrical source (Fig. 6 element 15).

Crosby et al. teaches a protective device connected directly to an AC electrical receptacle Figs. 1 & 3 element 30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an enclosure for supporting and protecting the device from environment factors such as light, heat, dust, moisture, to allow devices to be electrically connected to the AC electrical receptacle. This is the simplest way this surge suppressor can be connected between devices to be protected and an electrical network.

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Regarding to claim 11 Stahl discloses the surge suppression and protection device of claim 1.

Crosby et al. further discloses wherein the device is completely enclosed within a box having a housing (Figs. 1, 2, 3 element 12 or Figs. 5, 6 element 91).

Regarding to claim 12 Stahl discloses the surge suppression and protection device of claim 1.

Crosby et al. further discloses wherein the box comprises an AC plug (Figs. 1 and 3 element 30) mounted on a back side of the housing for inserting within an AC receptacle of a power line and at least one AC receptacle (Figs. 5 and 6 elements 93) mounted on the box housing such that it is accessible for receiving a plug of an electrical device.

Regarding to claim 13 Stahl discloses the surge suppression and protection device of claim 12.

Crosby et al. further discloses wherein the box further comprises a switch (Figs. 5 & 6 element 108) mounted on the housing for providing an on/off toggle for the surge suppression and protection device.

Regarding to claim 14 Stahl discloses the surge suppression and protection device of claim 1.

Neither Stahl nor Totsuka et al. discloses wherein the box comprises a plurality of terminals for hard-wiring electrical equipment or devices or data communication lines directly to the surge suppression and protection device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Stahl and Totsuka et al. to additionally provide a plurality of terminals for hard-wiring electrical equipment or devices or data communication lines directly to the surge suppression and protection device for connection to sensitive electrical devices which require protection at all times. A permanent connection provided by hardwiring would provide enhanced reliability for this particular connection.

Regarding to claim 21 Stahl discloses the surge suppression and protection device of claim 15.

Crosby et al. further discloses wherein the device is completely enclosed within a box having a housing (Figs. 1, 2, 3 element 12 or Figs. 5, 6 element 91).

Regarding to claim 22 Stahl discloses the surge suppression and protection device of claim 21.

Crosby et al. further discloses wherein the box comprises an AC plug (Figs. 1 and 3 element 30) mounted on a back side of the housing for inserting within an AC receptacle of a power line, at least one AC receptacle (Figs. 5 and 6 elements 93) mounted on the housing such that it is accessible for receiving a plug of an electrical

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device), and a switch (Figs. 5 & 6 element 108) mounted on the housing for providing an on/off toggle for the surge suppression and protection device.

Regarding to claim 23 Stahl and Totsuka et al. discloses the surge suppression and protection device of claim 1.

Neither Stahl nor Totsuka et al. discloses wherein the box comprises a plurality of terminals for hard-wiring electrical equipment or devices or data communication lines directly to the surge suppression and protection device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Stahl and Totsuka et al. to additionally provide a plurality of terminals for hard-wiring electrical equipment or devices or data communication lines directly to the surge suppression and protection device for connection to sensitive electrical devices which require protection at all times. A permanent connection provided by hardwiring would provide enhanced reliability for this particular connection.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis E. Román whose telephone number is (571) 272 – 5527. The examiner can normally be reached on Mon – Fri from 7:15 AM to 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system.

Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Luis E. Román
Patent Examiner
Art Unit 2836



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PRIMARY EXAMINER